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## Synchrotron-based Fuel Cell Research at General Motors

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Over the past decade, General Motors has pursued the goal of getting fuel-cell-based passenger vehicles on the roads. This goal is exemplified by the Project Driveway program: More than100 fuel-cell-powered Chevy Equinox crossovers have accumulated more than a million miles of real-life testing in select markets. However, to attain cost-competitiveness with modern internal-combustion-powered vehicles, the amount of precious metals in the cathode catalyst must be reduced while maintaining acceptable levels of performance and durability. GM employs a variety of methods to study next-generation materials, including high-resolution transmission electron microscopy, X-ray diffraction, electrochemistry, and so on. However, clear assessment of the advantages and disadvantages of new materials requires a technique that offers atomic resolution under *in situ* conditions. This presentation will provide an overview of how *in situ* X-ray absorption spectroscopy analysis of catalyst and support technologies contributes to these goals.